

CRN# **Fall 2021 Learning Communities****20566 LC 207-A Mathematical Experiments in Computer Science, 3 cr., M2:30-5:00****20561 CSC 201-A Discrete Mathematics, 3 cr., Prof. S. Simonson, MWF9:30-10:20****20562 CSC 211-A Data Structures, 3 cr., Prof. R. Bravaco, TR11:30-12:45**

Computers provide us with tools to explore mathematics in deeper ways than ever before. They allow empirical testing of mathematical conjectures with elusive proofs. Computers enable us to experimentally analyze algorithms whose performance defies theoretical analysis. This LC focuses on the delicate balance between theory and practice in computer science, revealing the dual and sometimes contradictory nature of computer science as both an engineering and a mathematical discipline.

***NOTE:** CSC 201 has a prerequisite of CSC 104 and MTH 126. CSC 211 has a prerequisite of CSC 104.*

20386 LC 235-0 Quantum Waves, 0 cr., (This course will be taken in Spring 2022)**20088 MTH 261-b Multivariable Calculus, 4 cr., Prof. H. Su****20381 PHY 221-A Physics III, 4 cr, Prof. A. Massarotti, MWF 10:30-11:20, W2:30-3:55**

The course is meant for students with a strong background in elementary physics. It is a natural continuation of the two elementary physics courses PHY 121-122, and students who have already taken these preliminary courses plus MTH 126 can automatically join LC 235. “Quantum Waves” can be taken as a stand-alone course or as part of a Learning Community, which includes Multivariable Calculus (MTH 261) as well as Physics III (PHY 221). “Quantum Waves” teaches about various quantum mechanical phenomena. With the creation of quantum mechanics in the 1920s, physicists conceived of a new and unexpected kind of wave that is neither a Newtonian (c. 1700) mechanical wave nor a Maxwellian (c. 1860) electromagnetic wave. These mysterious DeBroglie – Schroedinger waves of probability are the essence of quantum mechanics. These waves determine the structure of atoms and molecules, i.e. they are the deepest foundation of both physics and chemistry.

***NOTE:** MTH 261 has a prerequisite of MTH 126. PHY 221 has a prerequisite of MTH 126 and PHY 122. LC 235 allows students to fulfill the Writing in the Disciplines requirement along with the LC requirement of the Cornerstone Program.*